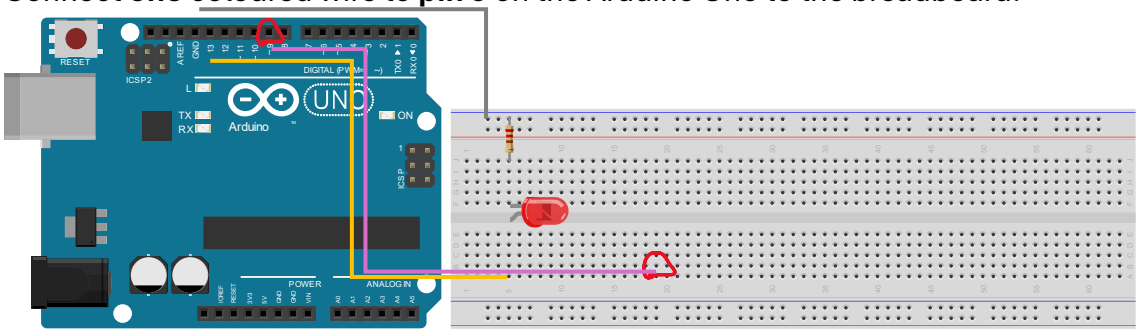
Exercise 3: Button Blink

Purpose: Extend Exercise 2 with an external pushbutton.

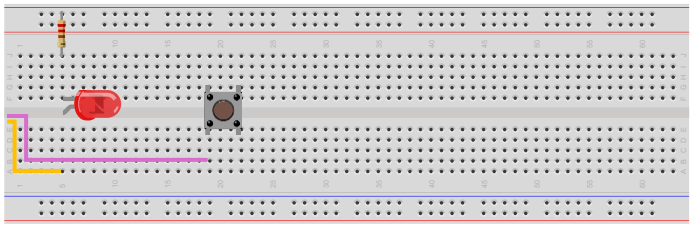
Instructions

1. Unplug your Arduino Uno from the PC.
2. Locate a pushbutton from your kit.

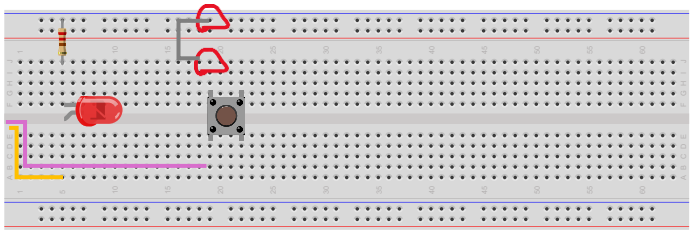
3. Connect **one** coloured wire to **pin 9** on the Arduino Uno to the breadboard.



4. Connect the pushbutton across the center of the board.



5. Connect the pushbutton to ground with a black wire.



6. Plug in your Arduino Uno.
7. Navigate to LEDPushbutton.cpp and copy the contents to the Arduino IDE text area.
   Open the file → Select All (CTRL+A) → Copy (CTRL+C).
   Open Arduino IDE Window → Select Text Area → Paste (CTRL+V).
8. Verify and upload the sketch to the Arduino Uno.
9. Press the pushbutton and confirm LED “L” and the external LED light up.
10. Now use a different program to automate Exercise 1!
11. Navigate to LEDButtonCycle.cpp and copy the contents to the Arduino IDE text area.
    Open the file → Select All (CTRL+A) → Copy (CTRL+C).
    Open Arduino IDE Window → Select Text Area → Paste (CTRL+V).
12. Verify and upload the sketch to the Arduino Uno.
13. Verify that each button press changes the blink frequency based on the list below.

a. Initialized: 1Hz.
   (500 ms between on/off)
b. Button press 1: 2.5Hz
   (200 ms between on/off)
c. Button press 2: 5Hz
   (100 ms between on/off)
d. Button press 3: 10Hz
   (50 ms between on/off)
e. Button press 4: 0.5Hz
   (1000 ms between on/off)
f. Button press 5: Step a.
   (Loops back around)